

REMARKS

Claims 1-55, corresponding generally to Claims 124-178 in the parent application, have been amended, where appropriate, to clarify the inventions intended to be claimed.

Applicants have provided the remarks which follow regarding the rejections in the parent application. In these remarks, the claims of the parent application are specified. The corresponding claims of the present application are shown in parentheses.

With respect to the rejection of claims 124-126 (1-3), 129 (6), 131-132 (8-9), 134-135 (11-12), 141 (18), 144 (21) under 35 U.S.C. § 102(b) involving Hazama [374]:

The Examiner alleges that "fast optical attenuator 13" in Hazama [374] is equivalent to "radiation beam adjustor" in claim 124 (1).

It is noted, however, that the "fast optical attenuator 13" in Hazama [374] has two bright and dark grids 16a and 16b with opaque grids provided on a transparent substrate. Light from the laser source 10 through beam expander 12 is reduced by the opaque grids. Except the case where the reduction rate is 0%, cross section of light flux through the two grids 16a, 16b has bright and dark

distribution in a dimensional direction along the cross section of the light flux. This light flux is incident on a fly-eye lens 28 through a speckle reducer 20, and thereafter light of the flux is collected through the respective rod elements of the fly-eye lens 28, thereby forming two-dimensional light source images of the same number as that of the rod elements onto the exit plane of the fly-eye lens 28. This exit plane is in the position of a so-called illumination pupil. Thus, in a macroscopic sense, substantially uniform illumination distribution is formed on the exit plane. In other words, in Hazama [374], no multipole illumination distribution is formed.

Further, even if the positional relationship of the bright and dark grids 16a, 16b in the fast optical attenuator 13 is altered, the light intensity distribution at the exit plane (illumination pupil) of the fly-eye lens 28 is not altered due to optical integration effect of the fly-eye lens 28 as an optical integrator.

With respect to the rejection of claims 159-163 (36-40), 167-168 (44-45) under 35 U.S.C. § 102(b) involving Shiozawa [EP-297]:

The Examiner alleges that Shiozawa [EP-297] discloses a first member (6 or 7) and a second member (7 or 6) in claim 159 (36).

It is noted, however, that in Shiozawa, two fly-eye lenses 6 and 7 are movable relatively in a vertical plane to the optical axis so as to make the positional relationship therebetween changeable, but neither of the fly-eye lenses 6 and 7 is exchangeable. In other words, in Shiozawa [EP-297], there is no feature that "by replacing the first member it is possible to achieve a different assignment of the plurality of elements of the first member to the plurality of elements of the second member and thereby a different illumination in the illumination pupil," recited in claim 159 (36).

With respect to the rejection of claims 124-126 (1-3), 129 (6), 138 (15), 141 (18), 143-144 (20-21) under 35 U.S.C. § 103(a) involving Nishi [467]:

The Examiner alleges that a dimmer plate 24 and an aperture stop 16 of Nishi [467] are equivalent to "radiation beam adjustor" in claim 124 (1). It is noted, however, that the dimmer plate 24 of Nishi [467] has similar function to the "fast optical attenuator 13" in Hazama [374] and is a plate which is partially opaque.

Light passing through the dimmer plate 23, after passing through two fly-eye lenses 9 and 14, forms substantially uniform illumination distribution macroscopically. In other words, at the exit plane of Nishi [467], no multipole radiation distribution is formed.

In Nishi [467], 4 pole (multi-pole) illumination pupil is formed at downstream side of the fly lens 14 (in the case where the aperture stop 18D is selected). However, the stop 16 is not disposed between the light source 1 and the fly-eye lens 14 which is the optical integrator, and therefore the stop 16 is not equivalent to the "radiation beam adjustor which is arranged in an optical path between the radiation source and the optical integrator," as recited in claim 124 (1).

With respect to the rejection of claims 145 (22), 147-151 (24-28) under 35 U.S.C. § 103(a) involving Nishi [467]:

A change mechanism 13 in Nishi [467] switches two relay lenses 12A and 12B having different refractive powers from each other so that either one of the relay lenses may be selectively positioned in the illumination optical path, thereby changing selectively diameter of light flux reaching the second fly-eye lens 14. Nishi [467], however, has no teaching or suggesting as to positioning two relay

lens 12A and 12B in the illumination optical path at the same time.

The Examiner has pointed out that the relay lens 12A and the stop 16 are arranged along the illumination optical path at the same time. However, the relay lens 12A and stop 16 are not arranged at the same place at the same time.

With respect to the rejection of claims 152 (29), 154-158 (31-35) under 35 U.S.C. § 103(a) involving Nishi [467]:

Nishi [467] has no teaching that multi-pole and/or annular illumination distribution is formed by the "adjusting optics" arranged between the optical source and the fly-eye lens 14 as an optical integrator. In Nishi [467], multi-pole and/or annular illumination distribution is formed by the stop 16 at the downstream side of the fly-eye lens 14 as the optical integrator.

With respect to the rejection of claims 127-128 (4-5), 130-135 (7-12), 146 (23), 152 (30) under 35 U.S.C. § 103(a) involving Nishi [467] and Shiraishi [704]:

Shiraishi [704] does not disclose any direct combination of "zoom optical system" with "radiation beam adjustor" having a plurality of optical surfaces arranged

substantially in a plane or in an array, and deflecting radiation in plural directions.

With respect to the rejection of claims 164-166 (41-43), 169-178 (46-55) under 35 U.S.C. § 103(a) involving Shiozawa [EP-297] and Shiraishi [704]:

In Shiozawa [EP-297], two fly-eye lenses 6 and 7 are not replaceable. Shiozawa [EP-297], as discussed above, has no feature that "by replacing the first member it is possible to achieve a different assignment of the plurality of elements of the first member to the plurality of elements of the second member and thereby a different illumination in the illumination pupil."

The Commissioner is hereby authorized to charge to Deposit Account No. 50-1165 any fees under 37 C.F.R. §§ 1.16 and 1.17 that may be required by this paper and to credit any overpayment to that Account. If any extension of time is required in connection with the filing of this

paper and has not been requested separately, such extension
is hereby requested.

Respectfully submitted,

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By: Nelson H. Shapiro
Nelson H. Shapiro
Reg. No. 17,095

Miles & Stockbridge P.C.
1751 Pinnacle Drive, Suite 500
McLean, Virginia 22102-3833
(703) 903-9000

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Nelson H. Shapiro
Nelson H. Shapiro

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